



D.R.O. Micro Drill

User manual



200021

W
AXMINSTER
WHITE

CE

2004

Part No. 200021

www.axminster.co.uk

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SAFETY!!

The symbols shown on the cover of this manual advise that you wear the correct safety protection when using this machine.

Safety Protection Symbols





Copied from CE Certificate

The undersigned, Ole Stilling authorised
by Shanghai SIEG Machinery Co., Ltd
No.555 Caofeng Rd, South to No.17 Bridge of
Caoan Rd, Shanghai, P.R China

declares that this product:

**Micro Mill
X0**

manufactured by Shanghai SIEG Machinery Co.is
in compliance with the following standards or
standardisation documents in accordance with
Council Directives

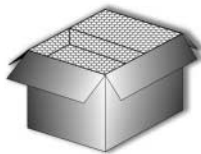
73/23/EEC 93/68/EEC 98/37/EC



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What's in the Box...



Model Number: X0

- | | |
|--------------|---|
| 1 No. | Micro Drill Comprising: |
| 1 No. | Headstock |
| 1 No. | Column and Work Table |
| 1 No. | Depth Collar and Ring |
| 1 No. | Star Knob (Complete with two Clamp Bushes) |
| 1 No. | Drill Chuck |
| 1 No. | Feed Handle |
| 1 No. | Chuck Key |
| 1 No. | 5.5mm & 7mm Open ended Spanner |
| 1 No. | 2mm Allen Key |
| 1 No. | 2.6mm Allen Key |
| 1 No. | 3mm Allen Key |
| 1 No. | 4mm Allen Key |
| 1 No. | Guarantee Card |
| 1 No. | Instruction Manual |



General Instructions for 230v Machines...



Good Working Practices/Safety

The following suggestions will enable you to observe good working practices, keep yourself and fellow workers safe and maintain your tools and equipment in good working order.



WARNING!!

KEEP TOOLS AND EQUIPMENT OUT OF THE REACH OF YOUNG CHILDREN

Mains Powered Tools and Machines

Primary Precautions

These machines are supplied with a molded 13 Amp Plug and 3 core power cable. Before using the machine inspect the cable and the plug to make sure that neither are damaged. If any damage is visible, have the damaged item inspected/repaired by a suitably qualified person. If it is necessary to replace the plug, it is preferable to use an 'unbreakable' type that will most resist damage. Only use a 13 Amp plug, and make sure the cable clamp is tightened securely. Fuse as required. If extension leads are to be used, carry out the same safety checks on them, and ensure that they are correctly rated to safely supply the current that is required for your machine. Remember, most machines or tools have handles or holding positions, the power cable is not one of them!

Work Place/Environment

The machine is not designed for use outside. Keep the machine clean; it will enable you to more easily see any damage that may have occurred. Clean the machine with a damp soapy cloth if needs be, do not use any solvents or cleaners, as these may cause damage to any plastic parts or to the electrical components.

Keep the work area as uncluttered as is practical, this includes personnel as well as material.

Under no circumstances should CHILDREN be allowed in work areas.

It is good practice to leave the machine unplugged until work is about to commence, also make sure to unplug the machine when it is not in use, or unattended. To avoid inadvertent 'start up'; if your machine is not fitted with a NVR system, ensure the switch is always returned to the OFF position. Once you are ready to commence work, remove any tools, objects or items that could inadvertently get 'sucked up' by the machine (if any) and place safely out of the way.

Re-connect the machine, ensuring the power cable is not 'snagged' or routed where it could be tripped over as you move about the workshop; it is not too close to an unguarded heat source, or is laid over or around a sharp edge.

If the work you are carrying out is liable to generate flying grit, dust or chips, wear the appropriate safety clothing, goggles, gloves, masks etc. If the work operation appears to be excessively noisy, wear ear-defenders.



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General Instructions for 230v Machines...

Work Place/Environment (Continued)



If you wear your hair in a long style, wearing a cap, safety helmet, hairnet, even a sweatband, will minimise the possibility of your hair being caught up in the rotating parts of the machine, likewise, consideration should be given to the removal of rings and wristwatches if these are liable to be a 'snag' hazard. Consideration should also be given to non-slip footwear, etc.

DO NOT work with cutting or boring tools of any description if you are tired, your attention is wandering or you are being subjected to distraction. A deep cut, a lost fingertip or worse; is not worth it!

DO NOT use this machine within the designated safety areas of flammable liquid stores or in areas where there may be volatile gases. There are very expensive, very specialised machines for working in these areas, **THIS IS NOT ONE OF THEM.**

Above all, **OBSERVE....** make sure you know what is happening around you, and **USE YOUR COMMON SENSE.**

IT IS RECOMMENDED THAT YOU WEAR EAR PROTECTION IF YOU ARE USING THIS MACHINE.

Specific Safety for Drilling Machines...

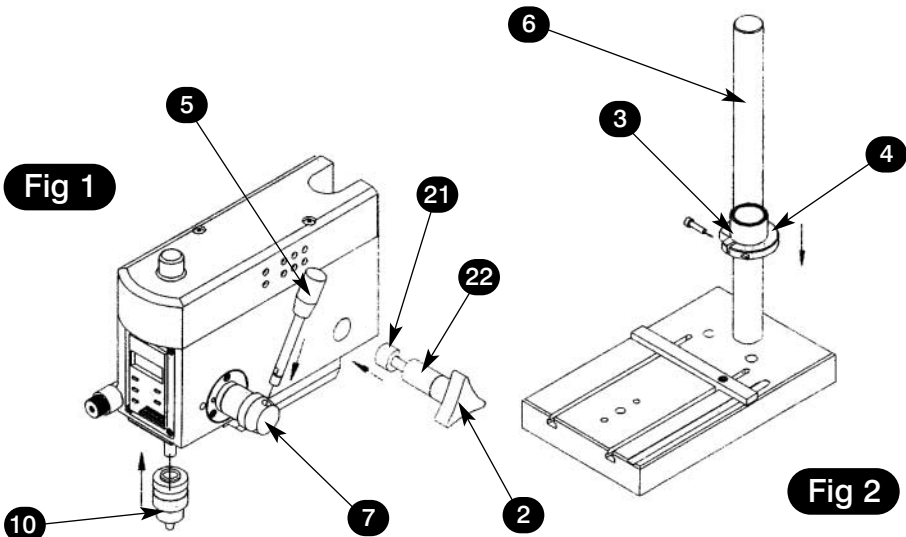
1. **DO NOT** operate the machine without carrying out a preliminary inspection.
2. Check that the speed is correct for the planned operation, and the upper drive belt cover is closed and fastened secure.
3. Check the drill bit is the correct size and type, is correctly fitted and tightened in the chuck.
4. Make sure that the drill head, the table bracket arm, the table tilt and the table swivel clamps are all locked before any drilling is attempted.
5. Do not attempt to carry out any drilling operation on material that has not been secured to the drill table, either by vice or clamp.
6. Remove any tools (chuck key, spanners etc), that may have been used in setting up operations and put them away in their correct storage positions.
7. Try to arrange the drilling operation so that the drill tip does not come in contact with the table.
8. Always allow the drill to stop before removing drilling or swarf from around the job or the table.



Specific Safety for Drilling Machines...

9. **NEVER** remove 'flying' swarf strands from the drill whilst it is turning.
10. It is a good precaution to wear eye protection when drilling, especially using small drills, or very hard material that produces small chips.
11. It is not a good idea to wear gloves when operating a drill press.
12. After the job is completed, remove all tools and accessories from the machine, check that drill bits are still sharp and re-useable. Clean the machine down thoroughly, including removing coolant or cutting compounds from the drill table. Lightly coat all metal surfaces with a light oil coating. Disconnect the machine from the supply. Secure the cable/plug clear of the floor.

Initial Assembly Instructions...



Please refer to the Assembly Drawing if you experience difficulties, this will enable you to more readily identify those parts of the machine to which we will be referring. Having unpacked your Micro Drill machine and all its components, please check against the 'What's in the box' list above. If any parts are missing please contact your supplier or our Customer Services personnel straight away using the numbers listed in the Axminster catalogue. Having unpacked the machine and checked it over, please store the packaging for a short period in case the machine needs to be returned to your supplier or ourselves for any reason.

The machine comes largely assembled

Take out all the parts from the package carefully.



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Initial Assembly Instructions Continued...

Assemble the Depth (4) collar and ring (3) onto the column firmly.
(Fig 2)

Insert the Star Knob (2) complete with the two clamp bushes (21, 22) into the headstock location.

Make sure the two cut outs are lined up towards the rear so as to allow the column to slide past them.

Slide the headstock onto the column (6), you can see down the hole to make sure the clamp cut outs mentioned above are clear of the column. When the column is completely through the headstock casting you can tighten the Star Knob to clamp the headstock into position.

Clean the spindle of any grease or oil and push the drill chuck (10) onto the spindle firmly. Turn the chuck to make sure it is tight.

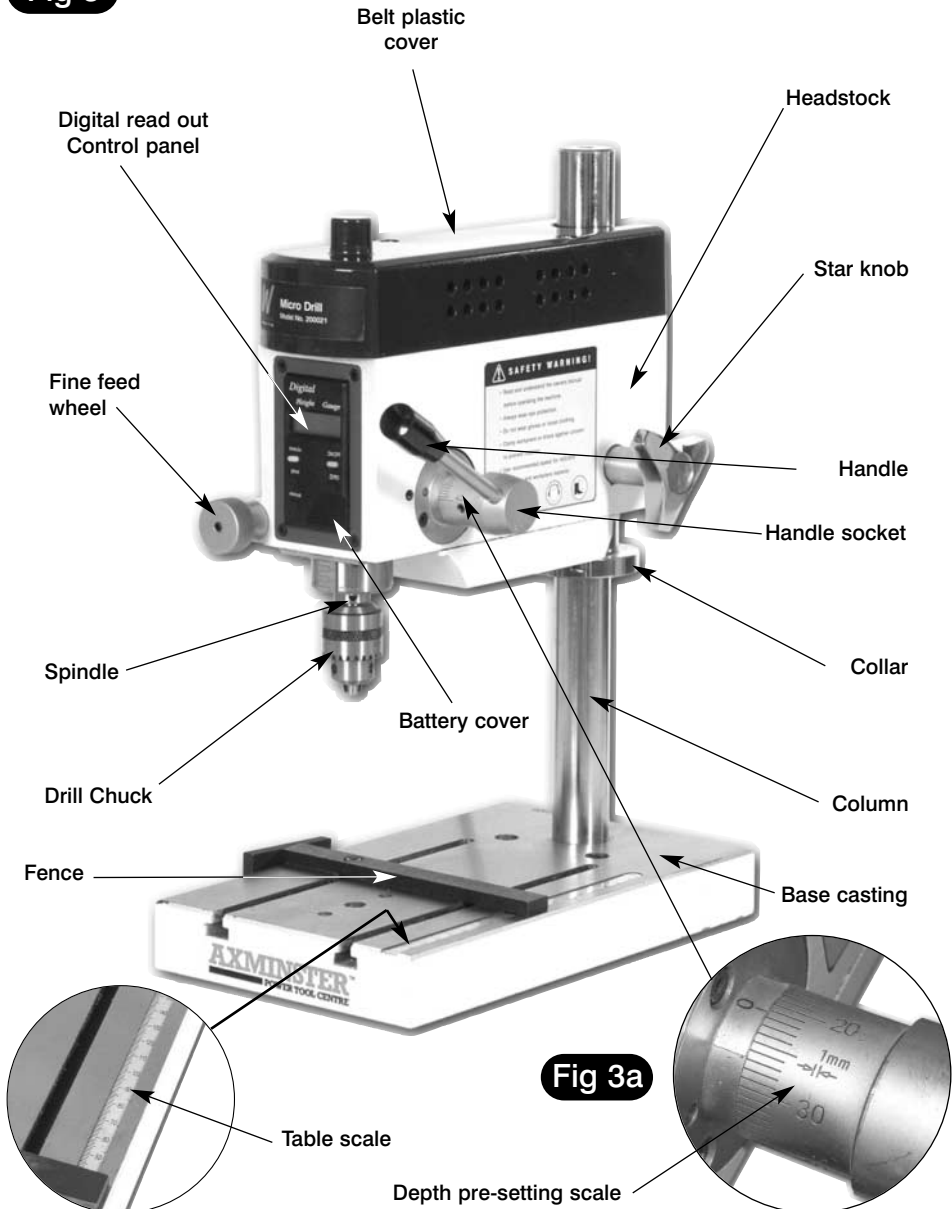
Put the handle (5) into the handle socket (7) and tighten with the wrench provided.
(Fig 1)

Specification

Axminster No.	200021
Max Drilling Capacity.	6mm (1/4")
Spindle Travel	40mm (1.1/2")
Headstock Travel	200mm (8")
Spindle Taper	B10
Speed Range	Low range 0-3600 rpm High range 0-5000 rpm
Base size	275mm X 165mm
Column size	30mm X 390mm
Motor power	150 W DC
Weight	14 KG



Fig 3



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Fig 4

On/Off rocker switch

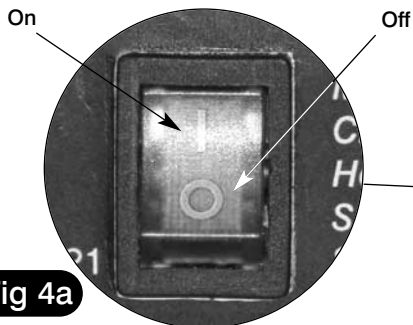


Fig 4a

Depth collar & ring

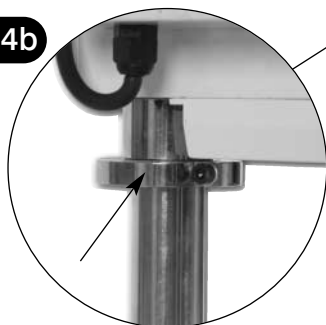


Fig 4b

Speed control knob

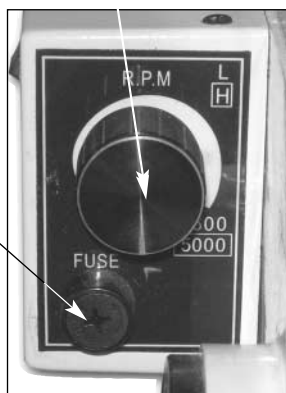


Fig 4c

Fuse

Speed control panel

Fine feed knob



Fig 4d

Knurled knob

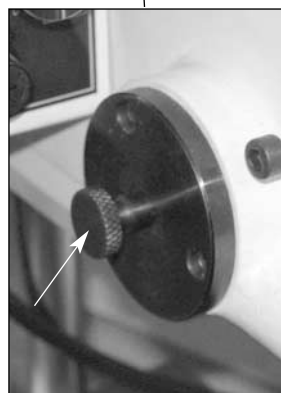


Fig 5

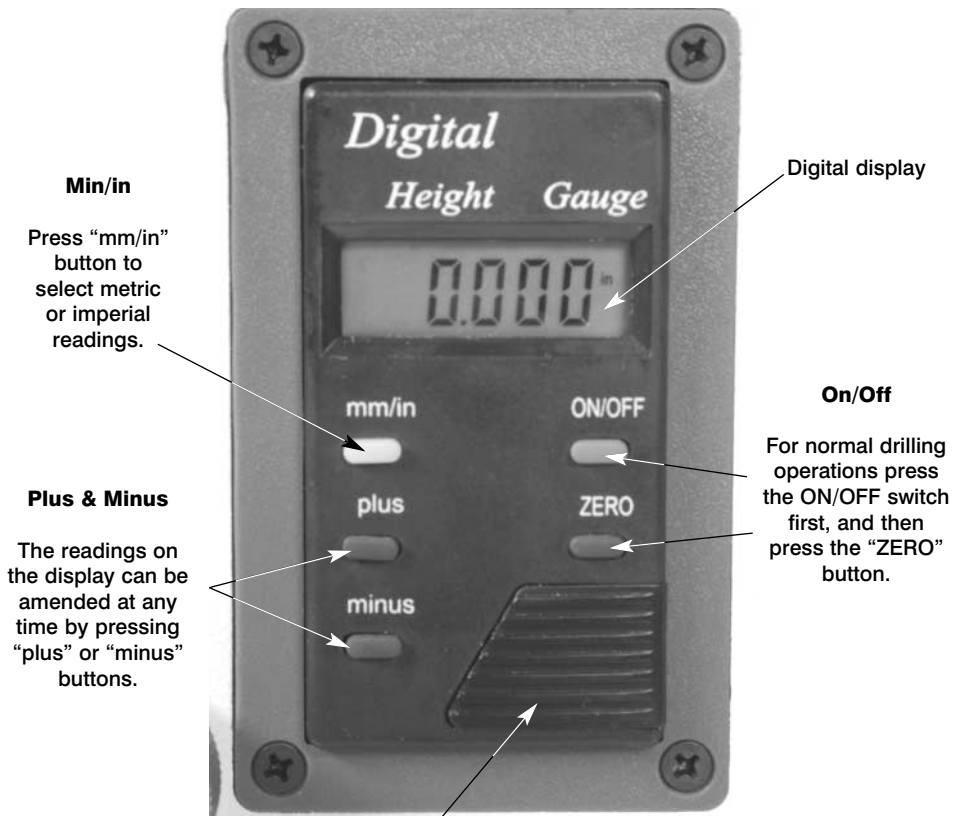


Fig 5a

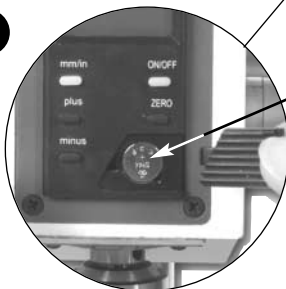
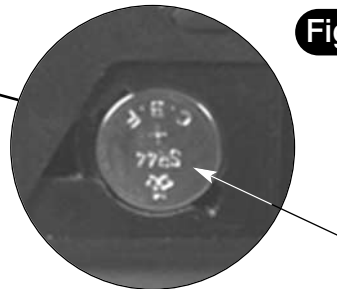


Fig 5b



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Setting headstock level (Figs 1 & 2)

Loosen the hex screw securing the depth collar (4) and adjust to the height required to prevent damage to the headstock by sudden dropping of the headstock.

Adjusting the headstock height (Fig 2)

Loosen the Star knob (2) whilst supporting the weight and move to the desired height.

Adjusting the spindle speed (Figs 6, 7, 8)

Drilling different size holes in differing hardness of materials requires a choice of drilling speeds.

There is a choice of two belt ratios as well as the variable motor speed range. To change the belt speed, loosen the two screws on the belt cover and remove the cover. Move the belt to the ratio required. There is no need to slacken the motor mounts to change the speeds. Refit belt cover.

Digital Read Out (DRO) (Fig 5)

For normal drilling operations press the ON/OFF switch first, and then press the "ZERO" button. Press "mm/in" button to select metric or imperial readings. These two buttons can be effected regardless of the down feed handle position, then you can start drilling. The readings on the display can be amended at any time by pressing "plus" or "minus" buttons. When displaying error (e.g. no readings or flashing) it means the batteries are low and need replacing.

Push against the arrow showing in (Fig 5a & 5b) to open the battery cover, withdraw the batteries for replacement. The voltage of the Zinc button batteries is 1.2 volts. After replacement, re-fit the cover.

Depth pre-setting (Fig 3a)

Turn the dial ring on the handle shank until the "0" scale is in line with the "0" scale on the spring base.

Calculate the required drilling depth and turn the dial ring to the desired reading and tighten the locking grub screw on the dial ring. Turn the handle to check the drilling depth is reached when the two "0s" meet.

Fine feed function (Figs 4 & 4d)

Press in the small knurled knob on the LH side of the headstock, (you may have to turn the fine feed knob a small amount to permit engagement), when it is fully engaged the fine feed knob will lower the spindle assembly very slowly. To free off the fine feed you will need to return the spindle back to its upper position. Then pull out the small knurled knob.

Switch arrangement (Figs 4a & 4b)

The small rocker switch on the side of the headstock will illuminate when switched on. Now turn the speed control knob from "0" to "I" when you will hear a click. Continue to turn the knob clockwise when the motor will start and you can then control the speed as required. Always stop the motor by turning the speed control knob fully anti-clockwise to "0". If the machine is switched off via the rocker switch or unplugged whilst the motor is running then the speed control will need to be returned to "0" and then turned clockwise as above before the motor will start again.



Adjusting the Spindle Speed...

Fig 6



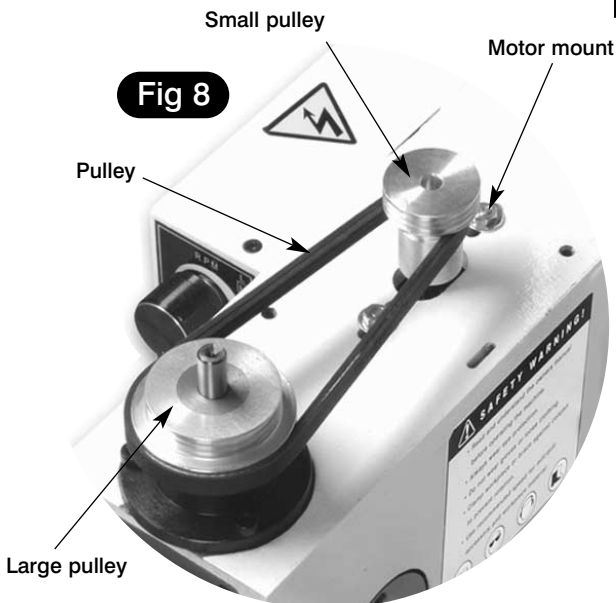
Loosen and remove the two screws on the belt cover.

Fig 7



Remove the belt cover.

Fig 8



Move the belt to the required ratio. There is **no** need to slacken the motor mounts to change the speed.

Routine Maintenance...



WARNING!!

Disconnect the machine from the Mains Supply

Excessive dust in the motor can cause excessive heat to develop. Every effort should be made to prevent foreign material from entering the motor. When operated under conditions likely to permit accumulations of dust, dirt or waste, a visual inspection should be made at frequent intervals.

Accumulations of dry dust can usually be blown out successfully.



Caution: To avoid eye injury or adverse reaction to dust, high pressure hoses should not be used especially in poorly ventilated areas. The operator performing this cleaning function should wear safety goggles and dust filter mask. After cleaning all dust and debris, a light coating of machine oil or spray oil on the quill then exercising to spread the oil all over.

If the machine is going to stand idle for any length of time, a light coat of spray or machine oil over the column and table will prevent rusting.

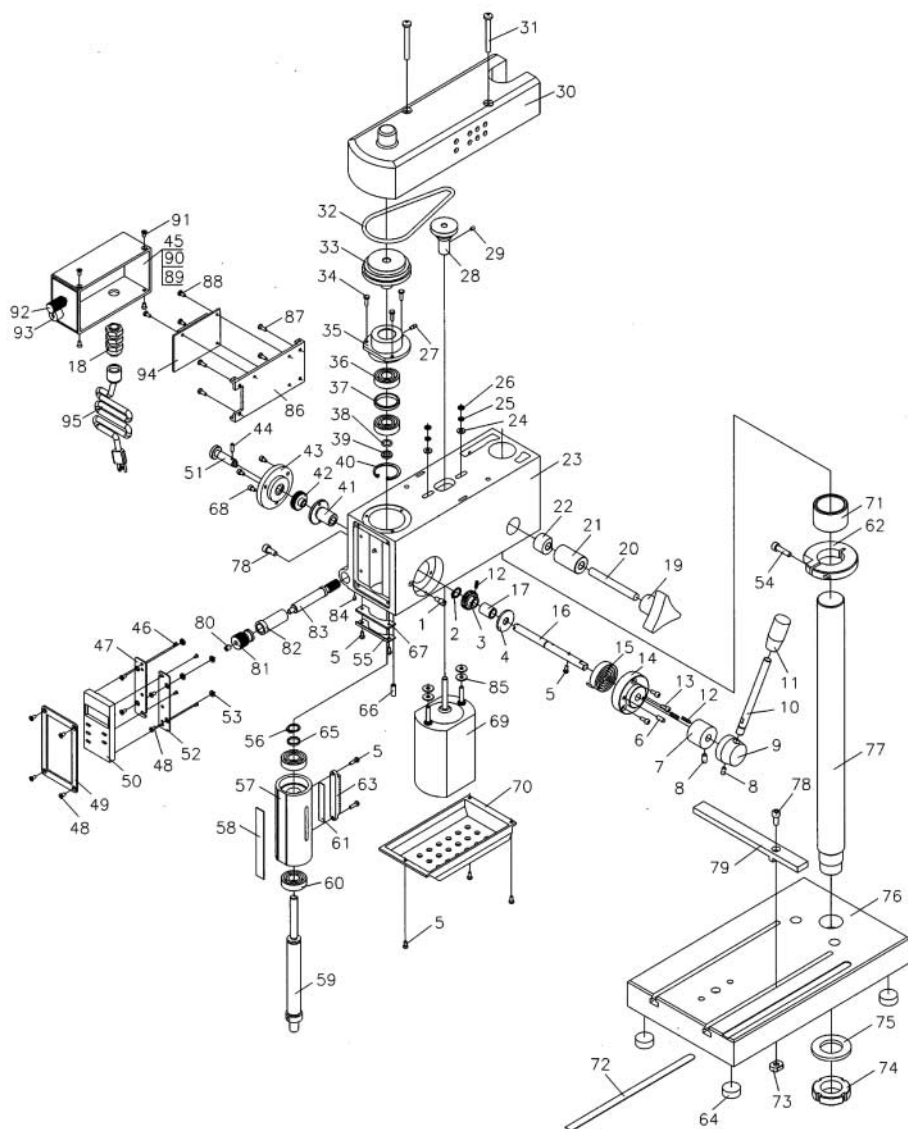


Do not use the machine if the power cable has become damaged.

If any servicing (other than the above cleaning) becomes necessary the unit should be returned to your supplier or repaired by a qualified electrician.



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Parts List for the Micro Drill...

P/No.	Description	P/No.	Description
1	Screw M6x14	43	Retaining Plate
2	Ring 8	44	Pin 3x10
3	Gear	45	Electrical box (I)
4	Washer	46	Screw M2x6
5	Screw M3x6	47	Connecting plate(left)
6	Pin 4x10	48	Screw M3x6
7	Dial ring	49	Plate
8	Screw M5x8	50	Digital read out
9	Handle seat	51	Connecting shaft
10	Handle shaft	52	Connecting plate (right)
11	Cap of handle shaft	53	Rubber washer
12	Pin 3x12	54	Screw M5x20
13	Screw M3x12	55	Cover for avoiding dust
14	Spring seat	56	Ring 15
15	Wound spring	57	Spindle sleeve
16	Shaft	58	Inductive plate
17	Washer	59	Spindle
18	Fixing ring for cord	60	Bearing 6002-Z
19	Star knob	61	Copper plate
20	Star knob sleeve	62	Fixing ring
21	Fixture block (I)	63	Rack
22	Fixture block (II)	64	Rubber foot
23	Head stock	65	Washer
24	Washer 4	66	Screw M5x14
25	Spring washer 4	67	Felt plate for avoiding dust
26	Nut M4	68	Rubber block for shock absorption
27	Fixing pin	69	Motor
28	Small pulley	70	Bottom cover
29	Screw M4x5	71	Washer
30	Upper cover	72	Ruler
31	Screw M5x45	73	Nut
32	O' belt	74	Nut m24x1.5
33	Big pulley	75	Flat washer 24
34	Screw M4x12	76	Base
35	Bearing seat	77	Column
36	Bearing 6001-Z	78	Screw M5x12
37	Washer	79	Parallel bar
38	Sealing ring	80	Screw M5x6
39	Ring	81	Small wheel
40	Ring 28	82	Spacer
41	Pipe	83	Worm shaft
42	Gear	84	Screw M4x5
85	Washer 4	91	Screw M3x6
86	Electrical box (II)g	92	Variable speed control knob
87	Screw M3x8	93	Fuse box
88	Screw M3x6	94	PC board
89	Power switch	95	Power cord with plug
90	Label		



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